METROPOLITAN UTILITIES DISTRICT OF OMAHA
OMAHA, NEBRASKA

SPECIFICATIONS FOR HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS FOR WATER DISTRIBUTION SERVICE

NOTE: This document has undergone a comprehensive formatting update as of 9/23/2025. Please review all sections for changes.

1.0 General

1.1 Purpose and Scope. This specification defines the minimum requirements for the material, procurement, logistics, and assurances of high density polyethylene (HDPE) pipe and fittings used within the District's municipal water system. Throughout this specification, 'pipe' and 'fittings' shall refer to HDPE pipe and fittings, respectively, unless otherwise specified.

1.2 Applicable Codes and Standards. The requirements of all referenced documents shall apply, except where superseded or supplemented herein. In case of conflict, these specifications shall govern. Unless otherwise specified, all external documents referenced shall be their latest edition.

1.3 Definitions.

1.3.1 *Ductile Iron Pipe Size (DIPS):* A standardized outside diameter sizing convention based on the outside diameters of ductile iron pipe sizes. A common acronym for DIPS is ductile iron outside diameter (DIOD).

2.0 Materials

2.1 Conformance.

2.1.1 Pipe and fittings shall conform to AWWA C906 *Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. for Waterworks*.

2.1.2 Pipe and fittings shall be NSF/ANSI 61 certified.

2.2 Properties.

2.2.1 Pipe and fittings shall be manufactured from HDPE compound having a material designation of PE4710 meeting ASTM D3350 cell classification 445574C-CC3. Refer to Plastics Pipe Institute (PPI) TN-44 for CC3 calculations.

2.2.2 The material shall be listed in PPI TR-4 with a standard grade hydrostatic design basis (HDB) rating of 1,600 psi at 73°F.

2.2.3 Unless otherwise specified, pipe and fittings shall be ductile iron pipe size (DIPS) and SDR 11.

2.3 Age. Pipe and fittings shall not be manufactured more than three (3) years prior to the date of delivery to the job site or the District’s storage yard.

2.4 Approved Manufacturers. The District approves the following manufacturers of pipe and fittings:

(1) Georg Fischer Central Plastics Company (Fittings Only)
(2) Integrity Fusion Products (Fittings Only)
(3) J-M Eagle
(4) Performance Pipe
(5) Pressure Piping Systems (Atkore) (Pipe Only)
(6) Strongbridge (Fittings Only)
(7) WL Plastics (Pipe Only)

3.0 Pipe

3.1 Pipe Marking.

3.1.1 For service identification, pipe shall be black and have a minimum of three (3) permanent blue stripes extending the length of the pipe being equally spaced around the circumference of the pipe.

3.1.2 Pipe shall be marked in accordance with ASTM F714 and AWWA C906. This includes, at a minimum, the following information:

(1) Nominal size and diameter base (e.g., DIPS 16”)
(2) Standard material designation code (e.g., PE4710 and PE445574C-CC3)
(3) Dimension ratio (e.g., SDR 11)
(4) Pressure rating and/or pressure class (e.g., PR 200)
(5) AWWA and ASTM designation (e.g., AWWA C906 and ASTM F714)
(6) Mark of the certifying agency (e.g., NSF)
(7) Manufacturer’s production code to include day, month, and year

4.0 Joints and Fittings

4.1 Fittings.

4.1.1 Unless otherwise specified, fittings shall be injection molded and manufactured in a single, homogenous piece.

4.1.2 Where injection molded fittings are not commercially available, manufactured fittings with butt fused joints shall be acceptable, as approved by MUD Engineering.

5.0 Handling, Shipping, Delivery, and Storage

5.1 Handling.

5.1.1 All piping and related materials shall be handled with care. Pipe shall be handled by use of ropes, wide belt slings, or other suitable tools and equipment that will not damage the material. Handling shall not be conducted with chains or cables.

5.1.2 Pipe and related materials shall not be dropped or rolled as a means of handling.

5.2 Shipping.

5.2.1 Care shall be taken during shipment to prevent cuts, scratches, and other damage.

5.2.2 Blocking and hold-downs shall be used during transportation to prevent shifting and movement. Chains or cables shall not be used for hold-downs.

5.2.3 During transportation, the leading edge of the pipe shall be covered to prevent foreign material (including exhaust, debris, and insects) from entering the pipe.

5.2.4 Smaller diameter pipe shall not be transported (nested) inside larger diameter pipe. Pipe shall be delivered in single layers with each layer being individually banded. Each layer of pipe shall have spacers with a minimum of 4" nominal thickness between them, including a 4" spacer between the bottom pipe layer and the trailer bed. The spacers shall remain with the pipe upon delivery at no additional cost to the District. Unless otherwise specified, additional bracing around a layer of pipe beyond what is described herein, such as on the sides or top, is prohibited.

5.3 Delivery. The District reserves the following rights in the event of the delivery of non-conforming pipe and/or fittings. Neither action shall result in charges to the District.

5.3.1 Refusal of Delivery. The District can refuse any and all loads at the time of delivery if they are found to be out of specification.

5.3.2 Rejection after Inspection. The District can reject any and all loads that are out of specification after it has had a reasonable opportunity to inspect them following delivery.

5.4 Storage.

5.4.1 Pipe and fittings shall be stored in a manner as to prevent damage to them. Pipe and fittings shall not be stored directly on the ground. Instead, they shall be stored on suitable supports (e.g., pallets, timbers, etc.). The storage area shall be a relatively smooth, level surface free of stones, debris or other materials that could damage the pipe or fittings. Smaller diameter pipe shall not be stored (nested) inside larger diameter pipe.

5.4.2 All materials shall be used on a first-in, first-out (FIFO) basis. The oldest inventory in stock shall be used before newer stock to ensure proper stock rotation and prevent material obsolescence.

6.0 Warranties and Guarantees

6.1 Warranty. The manufacturer shall warrant pipe and/or fittings for a minimum period of five (5) years after delivery to the jobsite or the District's storage yard. Within this period, costs accrued by the District for replacement or repair of pipe and/or fittings found to have defects in material and workmanship and/or not complying with AWWA C906, these specifications, and/or the manufacturer's documents shall be the responsibility of the manufacturer.

6.2 Affidavit of Compliance. If requested by the District, the manufacturer shall provide an affidavit with each pipe and/or fitting shipment that all materials comply with the requirements of AWWA C906 and this specification. The affidavit shall include the manufacturer's production code, including the day, month, and year of production, and all material testing results required by the applicable AWWA standard.